

Material Safety Data Sheet (MSDS) for Triethyl Citrate

Manufacturer: Shandong Ruisheng Pharmaceutical Excipients Co., Ltd.

Packaging Specifications: 25KG/drum, 210KG/drum

Manufacturer's Address: Middle Section of West Ring Road, Dong'e County,
Liaocheng City, Shandong Province

Contact Number: 0635-5018008

Section 1: Chemical Product and Company Identification

Chemical Name: Triethyl Citrate

This product is triethyl 2-hydroxypropane-1,2,3-tricarboxylate, prepared by the esterification of citric acid and ethanol under the action of a catalyst, followed by deesterification, neutralization and washing for purification. Calculated on the anhydrous basis, the content of $C_{12}H_{20}O_7$ is not less than 99.0%.

English Name: Triethyl Citrate

Section 2: Composition/Information on Ingredients

Property: Compound

Molecular Formula: $C_{12}H_{20}O_7$

This product is a colorless and clear oily liquid, freely soluble in ethanol, isopropanol or acetone, and soluble in water.

CAS No.: 77-93-0

Section 3: Hazards Identification

Hazard Class: Not a hazardous substance or mixture in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Routes of Exposure: Ingestion

Health Hazards: Harmful to the body if ingested in excess

Environmental Hazards: Slightly hazardous to water

Section 4: First-Aid Measures

Inhalation: If inhaled, remove the victim to fresh air. Administer artificial respiration if breathing stops.

Skin Contact: Wash with soap and plenty of water.

Eye Contact: Open eyes and rinse under running water for several minutes. Consult a physician if symptoms persist.

Ingestion: Rinse the mouth, then drink plenty of clean water. Seek medical assistance immediately.

Section 5: Fire-Fighting Measures

Property: Not a flammable substance

Extinguishing Media: Carbon dioxide (CO₂), dry chemical powder, water spray; use alcohol-resistant foam for large fires; sand

Special Hazards: In case of fire, the release of other toxic gases cannot be ruled out, e.g., Carbon Monoxide (CO)

Special Extinguishing Procedures: Avoid inhalation of dust/smoke/gases/fumes/vapors/spray

Special Protective Equipment for Firefighters: Wear appropriate respiratory protection in case of insufficient ventilation

Section 6: Accidental Release Measures

Protective Measures

Wear protective clothing and use respiratory protection to avoid exposure to smoke/dust/aerosols.

Environmental Precautions

Do not allow the product to enter sewage systems or any water sources.

Spill/Leakage Handling

Absorb with sand or other inert materials, or rinse with plenty of clean water, dilute and discharge into the wastewater collection system.

Section 7: Handling and Storage

Handling

Store away from heat and direct sunlight.

Keep away from ignition sources – no smoking.

Storage

Seal and store Triethyl Citrate in a sealed container.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: No further data available

Control Parameters: No required occupational exposure limits for components in the workplace

Personal Protective Equipment (PPE):

General Hygiene Measures: Observe general precautionary measures when handling chemicals.

Respiratory Protection: Not required.

Hand Protection: Wear impermeable gloves resistant to the product/substance/additives; select suitable glove materials.

Eye Protection: Safety glasses.

Section 9: Physical and Chemical Properties

Main Component: Compound

Physical State: Colorless and clear oily liquid

Relative Density: 1.135 ~ 1.139 at 25°C

Section 10: Stability and Reactivity

Triethyl Citrate should be stored in a sealed container at a temperature not exceeding 38°C. It is stable when stored under the above conditions.

Section 11: Toxicological Information

Triethyl Citrate is used in oral pharmaceutical formulations and can be directly used as a food additive; it is generally considered a non-toxic and non-irritating material, however, excessive ingestion is harmful.

LD50 (Cat, oral): 35g/kg

LD50 (Mouse, IP): 1.75g/kg

LD50 (Rat, IP): 4g/kg

LD50 (Rat, oral): 5.9g/kg

LD50 (Rat, SC): 6.6g/kg

There are no documented single-dose toxicological tests for Triethyl Citrate. As the product has long been used as a pharmaceutical excipient and no related



toxicological reactions have been collected, no such studies have been conducted.

There are no documented genetic toxicity tests, reproductive toxicity tests or carcinogenicity tests for Triethyl Citrate. As the product has long been used as a pharmaceutical excipient and no related toxicological reactions have been collected, no such studies have been conducted.

Reference

[1] Translated by Zheng Junmin. *Handbook of Pharmaceutical Excipients (4th Edition)*. Beijing: Chemical Industry Press, 2005, pp.765-766.

Section 12: Ecological Information

Persistence and Degradability: Not readily biodegradable

Other Information:

Potential for Bioaccumulation: No expected accumulation in organisms.

Mobility in Soil: No detailed data available.

Additional Ecological Information: Do not allow undiluted or large quantities of the product to contact groundwater, water courses or sewage systems; **Water Hazard Class:** Slightly hazardous to water.

Other Adverse Effects: No detailed data available.

Section 13: Disposal Considerations

Waste Disposal Method: It is recommended to dispose of the product in strict accordance with government regulations.

Contaminated Containers and Packaging: It is recommended to discard in accordance with official regulations.

Section 14: Transport Information

Transport Hazard Class: Not specified

Environmentally Hazardous: No

Marine Pollutant: No

Special Precautions for Users: Not applicable

Section 15: Regulatory Information

Hazardous Chemicals List: The substance is not listed.

Chemical Safety Assessment: Not yet conducted.

Section 16: Other Information

浙江医药股份有限公司
Zhejiang Medicine Co., Ltd.

None

Shandong Ruisheng Pharmaceutical Excipients Co., Ltd.

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